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| 10/797,640 | 03/10/2004 | D. Ryan Breese | 88-2071A | 4212 |
| 24114 7590 10/16/2007 LYONDELL CHEMICAL COMPANY 3801 WEST CHESTER PIKE NEWTOWN SQUARE, PA 19073 | | | EXAMINER WOLLSCHLAGER, JEFFREY MICHAEL | |
| | | | ART UNIT 1791 | PAPER NUMBER |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/797,640

Applicant(s)

BREESE, D. RYAN

Examiner

Jeff Wollschlager

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 June 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4, 6-13 and 16-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-13 and 16-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on June 14, 2007 has been entered.

Response to Amendment

Applicant's amendment to the claims filed June 14, 2007 has been entered. Claim 1 is currently amended. Claims 5, 14 and 15 have been canceled. Claims 16-19 are new.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 6, 13, and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Takahashi et al. (US 5,348,794).

Regarding claims 1, 6, 13 and 17, Takahashi et al. teach a method of producing a monoaxially/uniaxially oriented multilayered packaging film. Takahashi et al. teach passing the multilayered film through a pair of rolls in a heated state, at a temperature up to 70 °C below the melting point of the resins, and monoaxially drawing down the film by up to a factor of 7 (Abstract; col. 4, lines 17-35). Takahashi et al. disclose one of the film combination layers as a

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4 layer film of polyamide/adhesive resin/HDPE/LLDPE. Therefore, Takahashi et al. disclose a film comprising at least one layer of LLDPE and at least one layer of HDPE. Further, the draw down ratio employed and disclosed by Takahashi et al. on the provided film is greater than the value required by claim 17.

Accordingly, it follows that since Takahashi et al. employ the same claimed materials and perform the same claimed steps, that the same claimed effects and physical properties would be intrinsically realized (e.g. delamination and dart drop strength increases).

Claims 2-4 are rejected under 35 U.S.C. 102(b) as being anticipated by Takahashi et al. (US 5,348,794) as evidenced by applicant's admitted prior art (US 2005/0200046).

As to claims 2-4, the recited densities are substantially, by definition, the art accepted densities of the recited materials as is acknowledged in the instant disclosure at paragraph [0003]. Further, Takahashi et al. exemplify a HDPE sample with a density of 0.956 g/cm³. (col. 5, lines 7-12).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 7-12 are rejected under 35 U.S.C. 103(a) as being obvious over Takahashi et al. (US 5,348,794), as applied to claims 1-4, 6, 13, and 17 above, in view of Go et al. (US 4,577,768) and/or White et al. (US 6,013,378).

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As to claims 7-12, Takahashi et al. teach the method of claim 1 as set forth above. Takahashi et al. do not disclose the molecular weight or molecular number of the HDPE or the LLDPE. However, each of Go et al. (Table II) and White et al. (Abstract; col. 2, lines 52-65; individually provide teaching of the conventional and suitable ranges of molecular weight/number properties for HDPE and LLDPE suitable for employment in the art and falling within the claimed ranges.

Therefore it would have been *prima facie* obvious to one having ordinary skill in the art at the time of the claimed invention to have employed conventional and art recognized suitable ranges for the molecular weight and molecular number of the polyethylene's employed in the method of Takahashi et al. for the purpose of employing readily available and cost effective materials with a high expectation of success.

Claim 16 is rejected under 35 U.S.C. 103(a) as being obvious over Takahashi et al. (US 5,348,794) as applied to claims 1-4, 6, 13, and 17 above, in view of Harp et al. (US 5,024,799).

As to claim 16, Takahashi et al. teach the method as set forth above. Takahashi et al. do not disclose the relative speeds of the rolls. However, Harp et al. employ a process of stretching film where material is fed from a series of rolls where the speed is controlled at two to ten times the incoming film speed. The examiner notes that the incoming film for compression and orientation is being drawn by rolls (Figure 1; col. 3, lines 11-57).

Therefore it would have been *prima facie* obvious to one having ordinary skill in the art at the time of the claimed invention to have employed the speed arrangement as set forth by Harp et al. in the method of Takahashi et al. since Harp et al. suggest such a configuration is an art recognized equivalent and alternative means of stretching a film.

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Claims 1-4, 6, 13 and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over White et al. (US 6,013,378) in view of Kono et al. (US 5,853,633) and Koschak et al. (US 4,501,798).

Regarding claims 1, 6, 13, and 17-19, White et al. teach a method of making a film with improved strength, including improved dart drop strength, wherein a multilayered film comprising a layer of HDPE having a melt index of less than about 0.1 and a layer of LLDPE are coextruded thereby providing a multilayered film. After coextrusion, the film is then drawn down in the machine direction at a ratio of about 10:1 to 150:1. (Abstract; col. 2, lines 44-67; col. 3, lines 39-67; col. 4, lines 47-55; col. 5, lines 1-28). White et al. do not teach heating the film below its melting point. However, Kono et al. teach that in stretching operations the temperature of the film is preferably controlled within a heated range below the melting point of the resins (col. 5, lines 5-30). Further, Koschak et al. suggest, that multilayered films can be effectively oriented either in an inline operation immediately following their production or in an offline operation at a later time (col. 7, lines 1-48).

Therefore it would have been *prima facie* obvious to one having ordinary skill in the art at the time of the claimed invention to have heated the film to a temperature below the melting point as suggested by Kono et al. in the process disclosed by White et al. for the purpose of effectively producing an oriented film. Additionally, Koschak et al. suggest the film of White et al. can reasonably be stretched either in an inline or offline operation.

The examiner notes that the instant claims as currently presented do not clearly require the operation be performed on a previously produced and previously stretched film. The examiner further notes that even if the claim were so interpreted that Koschak et al. provide evidence that the timing of the stretching can be readily determined by the ordinary artisan.

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Further, since White et al. teach draw down ratios as high as 150:1 with dart drop strengths higher than those disclosed in the instant disclosure and the instant disclosure suggests that total draw down ratios of somewhere between 35:1 – 65:1 (see the response to argument section below) are effective to produce the claimed delaminated film with increasing dart drop strengths, the examiner concludes that White et al. in combination with Kono et al. would realize the same claimed effect.

Further still, the examiner notes that the claim does not exclude performing additional processing steps after the uniaxial machine direction orientation.

As to claims 2-4, White et al. disclose the claimed densities (Abstract; col. 2, lines 44-50).

Claims 7-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over White et al. (US 6,013,378) in view of Kono et al. (US 5,853,633) and Koschak et al. (US 4,501,798) as applied to claims 1-4, 6, 13 and 17-19 above, and further in view of Go et al. (US 4,577,768).

As to claims 7-12, White et al. disclose the claimed molecular properties for LLDPE (col. 2, lines 52-67). Further, White et al. disclose the melt flow rate index of the HDPE as being less than 0.1. The examiner notes that the properties of melt flow rate and molecular weight/number are highly correlated and further notes that the instant disclosure teaches that melt flow rates as low as 0.01 are suitable. White et al. do not expressly disclose a molecular weight/number for the HDPE. However, Go et al. disclose conventional HDPE having a melt index of about 0.1 with the molecular weight/number clearly within the claimed ranges.

Therefore it would have been *prima facie* obvious to one having ordinary skill in the art at the time of the claimed invention to have chosen a HDPE having a melt index of less than about 0.1 as taught by White et al. having molecular weight/number properties within the claimed

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range as suggested by Go et al. since the melt index and molecular weight/number of a polymer are highly correlated and Go et al. demonstrate that such materials fall within the claimed range.

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over White et al. (US 6,013,378) in view of Kono et al. (US 5,853,633) and Koschak et al. (US 4,501,798) as applied to claims, 1-4, 6, 13 and 17-19 above, in view of Harp et al. (US 5,024,799).

As to claim 16, the combination teaches the method set forth above. White et al. do not teach the claimed speed arrangement. However, Harp et al. employ a process of stretching film where material is fed from a series of rolls where the speed is controlled at two to ten times the incoming film speed. The examiner notes that the incoming film for compression and orientation is being drawn by rolls (Figure 1; col. 3, lines 11-57).

Therefore it would have been *prima facie* obvious to one having ordinary skill in the art at the time of the claimed invention to have employed the speed arrangement as set forth by Harp et al. in the method of White et al. since Harp et al. suggest such a configuration is an art recognized equivalent and alternative means of stretching a film.

Response to Arguments

Applicant's arguments filed June 14, 2007 have been fully considered but are moot in view of the new grounds of rejection. However, the examiner notes the following. Examples 1-6 in the instant disclosure show an initial stretching of the film from a die of 2.5 mm (98 mil) to a thickness of 14 mil. This provides an initial stretch/draw down ratio of 7. This film that has been drawn down by a ratio of 7, is further drawn down as shown in Table 1. Somewhere between the additional draw down ratio of 5 and 6 the dart drop starts to increase and the film begins to delaminate (US 2005/0200046, paragraph [0027]). Said differently, between a total draw down

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ratio of $7 \times 5 = 35$ to $7 \times 6 = 42$ the dart drop strength begins to increase and the film begins to delaminate. Necessarily, the film begins to delaminate at a total draw down ratio of at least $7 \times 9.3 = 65$ since this is the maximum draw down that can be produced by the equipment (paragraph [0034]).

The Farley reference only discloses a total draw down ratio of about 21 and is therefore not reasonably considered to meet the claim as it is currently presented.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff Wollschlager whose telephone number is 571-272-8937. The examiner can normally be reached on Monday - Thursday 7:00 - 4:45, alternating Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on 571-272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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JW

Jeff Wollschlager
Examiner
Division 1791

October 2, 2007

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SUPERVISORY PATENT EXAMINER